6AL11

Beam Power Tube— Sharp-Cutoff Pentode

For Combined FM Detector and Audio-Frequency Output Amplifier Applications in TV Receivers

DUODECAR TYPE

Electrical:

Heater Characteristics and Ratings:

Voltage (AC or DC)	6.3 ± 0.6	volts
Current at heater volts = 6.3	0.9	amp
Peak heater-cathode voltage (Each unit):		
Heater negative with respect to cathode	200 max.	volts
Heater positive with respect to cathode	200[a] max.	volts

Direct Interelectrode Capacitances (Approx.):[b]

Beam Power Unit:

Grid No.1 to plate	0.26	pf
Input: $G1_B$ to $(K_B{+}G3_B, G2_B, IS, H)$	11	pf
Output: P_B to $(K_B{+}G3_B, G2_B, IS, H)$	12	pf

Pentode Unit:

$G1_P$ to P_P	0.034	pf
$G3_P$ to P_P	3.2	pf
$G1_P$ to $(K_P, G2_P, G3_P, IS, H)$	6.5	pf
$G3_P$ to $(K_P, G1_P, G2_P, P_P, IS, H)$	7.5	pf
$G1_P$ to $G3_P$	0.24	pf
P_B to P_P	0.12	pf

Mechanical:

Operating Position	Any
Type of Cathodes	Coated Unipotential
Maximum Overall Length	2.625" ←
Seated Length	2.000" to 2.250" ←
Diameter	1.062" to 1.188"
Dimensional Outline (JEDEC 9-59)	See *General Section*
Bulb	T9
Base	Small-Button Duodecar 12-Pin (JEDEC No.E12-70)
Basing Designation for BOTTOM VIEW	12BU

Pin 1 - Heater
Pin 2 - Pentode Cathode
Pin 3 - Pentode Grid No.1
Pin 4 - Pentode Grid No.3
Pin 5 - Internal Shield
Pin 6 - Pentode Plate
Pin 7 - Pentode Grid No.2
Pin 8 - Beam Power Grid No.1
Pin 9 - Beam Power Cathode, Beam Power Grid No.3
Pin 10 - Beam Power Grid No.2
Pin 11 - Beam Power Plate
Pin 12 - Heater

[a] The dc component must not exceed 100 volts.
[b] Without external shield.

← Indicates a change.

Characteristics, Class A_1 Amplifier (Pentode Unit):

Plate Supply Voltage	150	volts
Grid-No.3	*Connected to cathode at socket*	
Grid-No.2 Supply Voltage	100	volts
Grid-No.1	*Connected to negative end of cathode resistor*	
Cathode Resistor	560	ohms
Plate Resistance (Approx.)	0.15	megohm
Transconductance, Grid No.1 to Plate	1000	μmhos
Transconductance, Grid No.3 to Plate	400	μmhos
Plate Current	1.3	ma
Grid-No.2 Current	2.1	ma
Grid-No.1 Voltage (Approx.) for plate μa = 30	-4.5	volts
Grid-No.3 Voltage (Approx.) for plate μa = 50	-4.5	volts

PENTODE UNIT — FM SOUND DETECTOR

Maximum Ratings, *Design-Maximum Values:*

Plate Voltage	330 max.	volts
Grid-No.3 (Suppressor-Grid) Voltage	28 max.	volts
Grid-No.2 (Screen-Grid) Supply Voltage	330 max.	volts
Grid-No.2 Voltage	See *Grid-No.2 Input Rating Chart* at front of Receiving Tube Section	
Grid-No.1 (Control-Grid) Voltage:		
Positive-bias value	0 max.	volts
Plate Dissipation	1.7 max.	watts
Grid-No.2 Input:		
For grid-No.2 voltages up to 165 volts	1.1 max.	watts
For grid-No.2 voltages between 165 and 330 volts	See *Grid-No.2 Input Rating Chart* at front of Receiving Tube Section	

BEAM POWER UNIT — AMPLIFIER — Class A_1

Maximum Ratings, *Design-Maximum Values:*

Plate Voltage	275 max.	volts
Grid-No.2 (Screen-Grid) Voltage	275 max.	volts
Plate Dissipation	10 max.	watts
Grid-No.2 Input	2 max.	watts

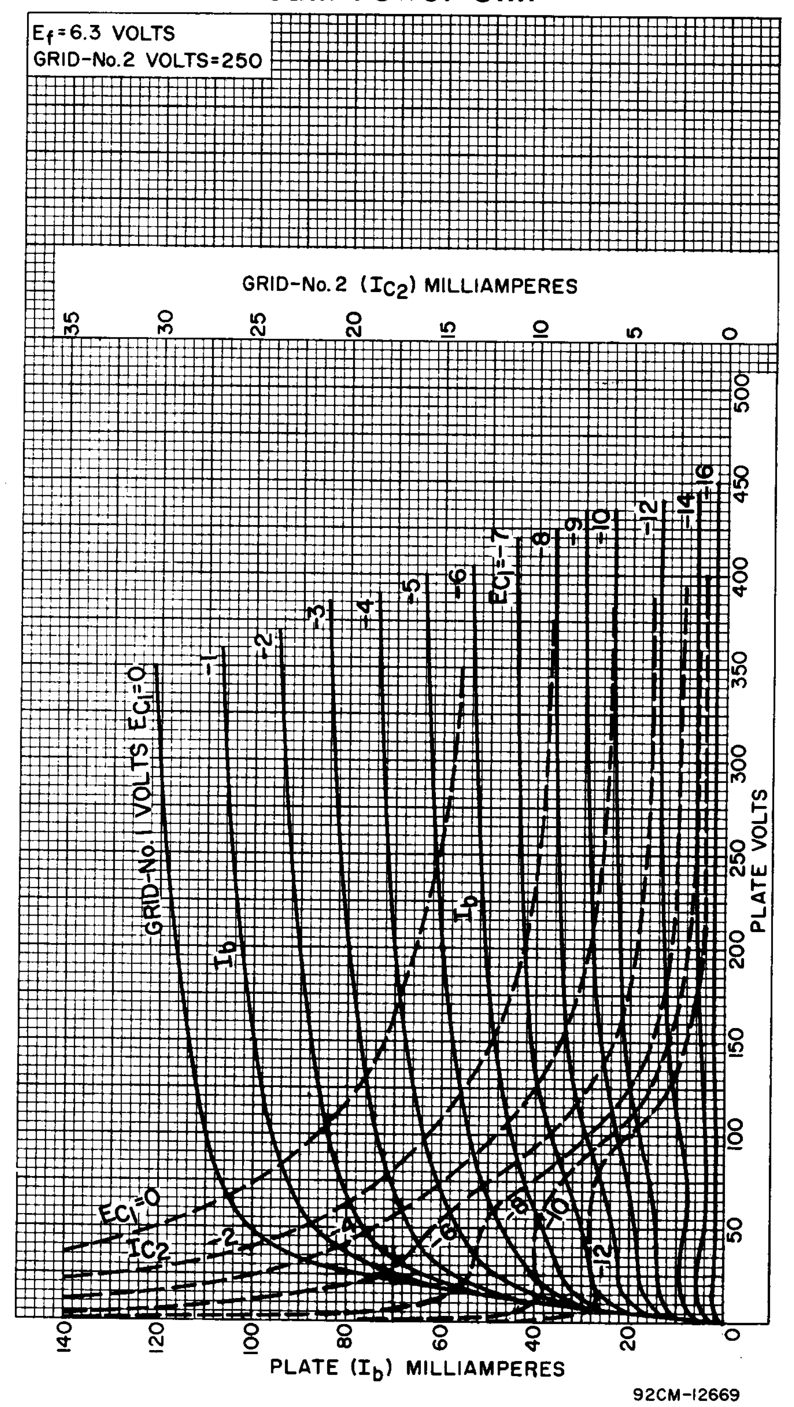
Typical Operation and Characteristics:

Plate Voltage	250	volts
Grid-No.2 Voltage	250	volts
Grid-No.1 (Control-Grid) Voltage	-8	volts
Peak AF Grid-No.1 Voltage	8	volts
Zero-Signal Plate Current	35	ma
Max.-Signal Plate Current	39	ma
Zero-Signal Grid-No.2 Current	2.5	ma
Max.-Signal Grid-No.2 Current	7	ma
Plate Resistance (Approx.)	0.1	megohm
Transconductance	6500	μmhos
Load Resistance	5000	ohms
Total Harmonic Distortion	10	per cent
Max.-Signal Power Output	4.2	watts

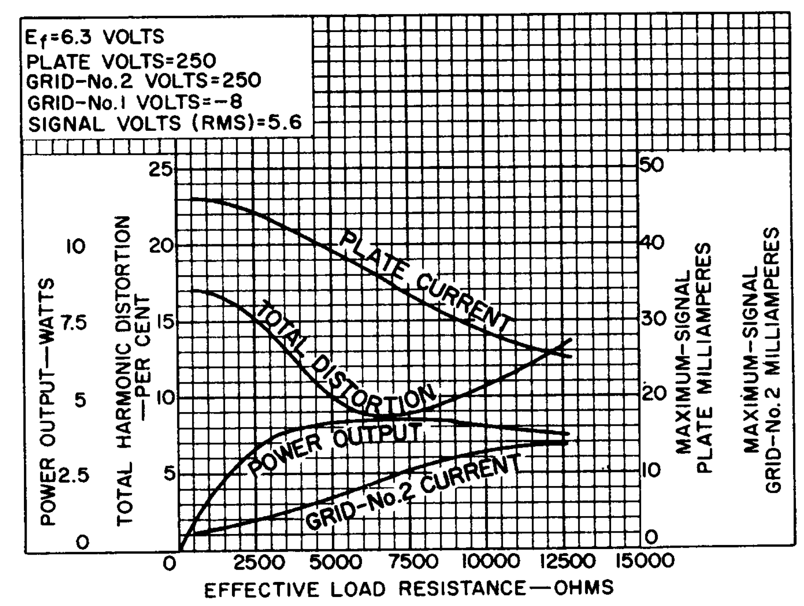
Maximum Circuit Values:

Grid-No.1-Circuit Resistance:		
For fixed-bias operation	0.25 max.	megohm
For cathode-bias operation	0.5 max.	megohm

AVERAGE CHARACTERISTICS
Beam Power Unit

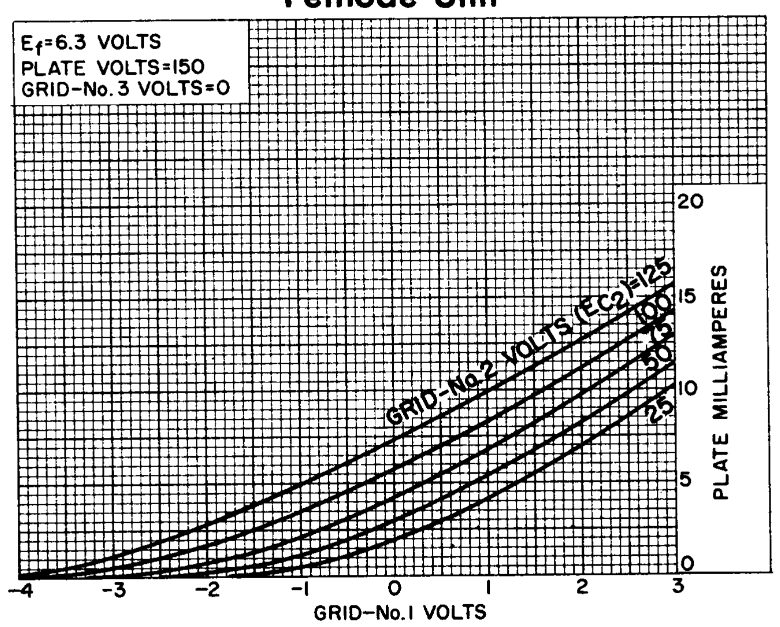


OPERATION CHARACTERISTICS
Beam Power Unit



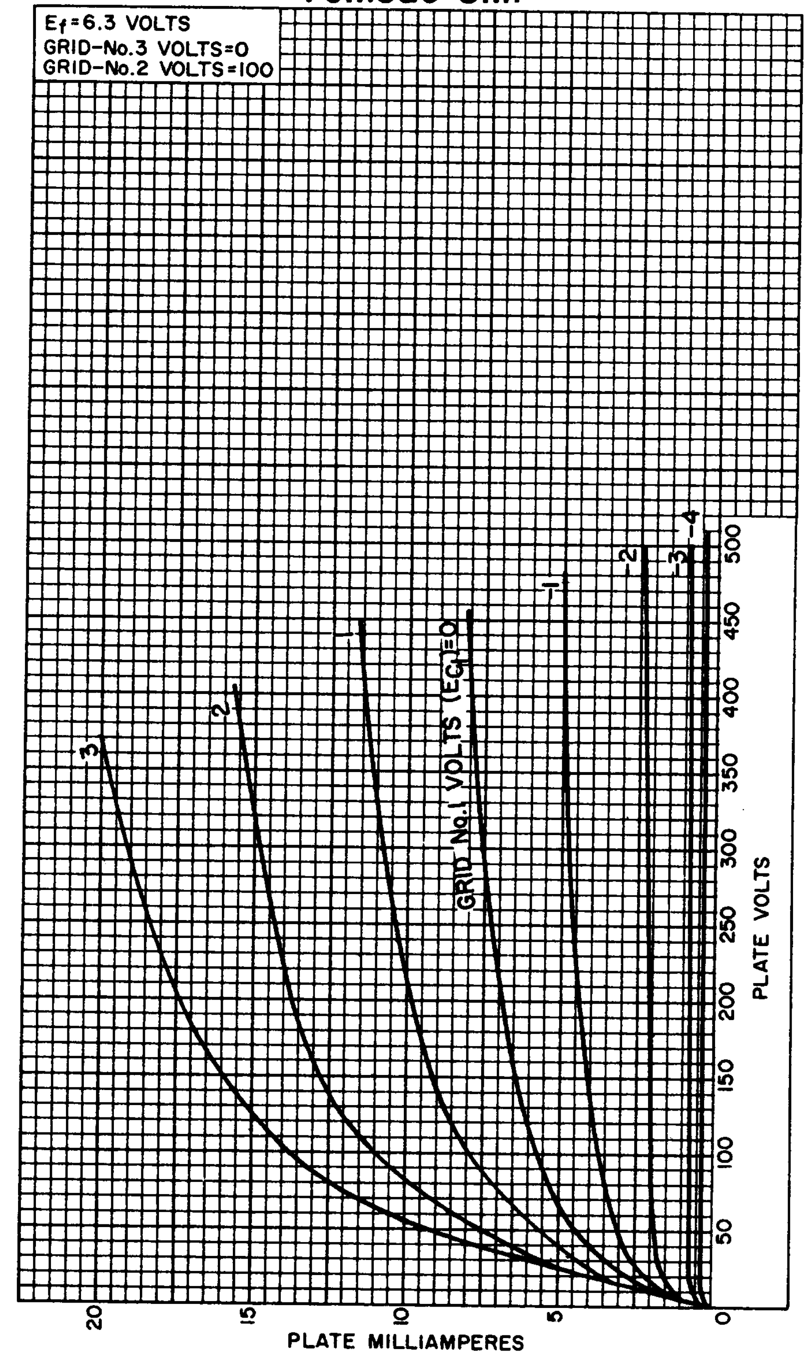
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AVERAGE CHARACTERISTICS
Pentode Unit



92CS-12670

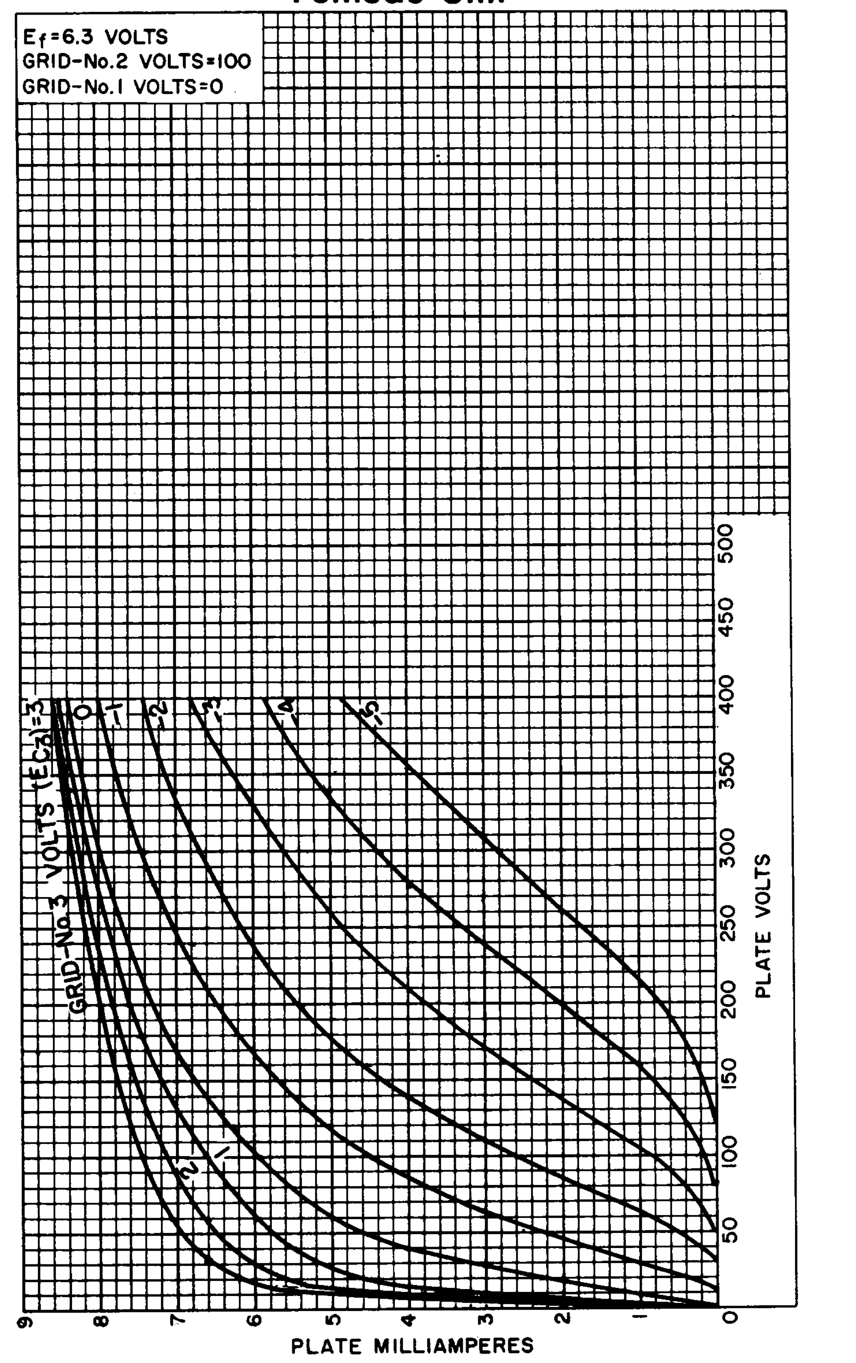
AVERAGE PLATE CHARACTERISTICS
Pentode Unit



92CM-12671

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AVERAGE PLATE CHARACTERISTICS
Pentode Unit



92CM-12672